Our Reference: 5856
Date: 21 June 2017

Mr David Calvert
A/g Assistant Secretary
Environment Assessment Branch
Department of the Environment
Canberra, ACT

RE: EPBC 2009/4821 – Year 3 Monitoring Report (May 2017) for Wotonga Offset Area Management Plan – Millennium Mine Expansion Project

Ecology and Heritage Partners Pty Ltd (EH Partners) have been engaged by Peabody Energy Australia (Peabody) to implement the management and monitoring requirements for their environmental offset area that has been established on the "Wotonga Pastoral Holding" property, north-east of Moranbah in central Queensland. The offset area was established to comply with conditions of approval under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (EPBC 2009/4821)(Appendix 1). This letter has been prepared to show compliance with the monitoring requirements for Year 3 as described in section 4 of the Wotonga Offset Area Management Plan (Ecofund 2013). Offset area details are provided in Appendix 2.

The offset area consists of an active management area (containing regional ecosystem 11.9.5 *Acacia harpophylla* and/or *Casuarina cristata* open forest on fine-grained sedimentary rocks) and a passive management area (comprising the adjoining scarps and associated vegetation).

1 Visual Monitoring

The status of the offset area was based on visual inspection that was completed on 2 May, 2017, by Brigette Hodson (Consultant Zoologist, EH Partners) and was conducted during start of the dry season, but proceeds the end of the late wet season whereby ex-Tropical Cyclone Debbie was experienced in Central Queensland during late March 2017. The next monitoring event and BioCondition survey is scheduled for August 2017.

This section includes the findings from the visual monitoring and implications for management.

1.1 Perimeter fencing and gates

The offsets area occurs within a larger property, which is fully fenced. The fences are a three strand barb-wire type and are in good condition. Where the fence crosses Brook Creek, additional sections have been included to prevent cattle entering the area. Gates are located at the north-western, south-eastern and south-western corners of the offset area and are in good condition.

1.1.1 *Further actions*

No repairs are required to fences or gates at this time. General fence maintenance is provided by Mr. Lance Smith (Agistee – Wotonga Pastoral Holdings).

1.2 Noxious and environmental weeds

The primary weed threat within the offset area is Buffel Grass *Cenchrus ciliaris*. There are also scattered occurrences of Velvety Tree Pear *Opuntia tomentosa* and Harrisia Cactus *Harrisia martinii*. Velvety Tree Pear and Harrisia Cactus are restricted invasive plants under the Queensland *Biosecurity Act 2014* and Velvety Tree Pear is a Weed of National Significance (WoNS). All cactus plants observed were either very small in size or showed signs of attack from the biological control agent, a moth *Cactoblastis cactorum*, indicating that additional control may not be required.

Buffel Grass is established within the offset area; however it varies in extent and density depending upon the age and structure of the Brigalow regrowth. The species occurs in discrete patches and as isolated individuals across the offset area.

Buffel Grass was seeding at the time of the assessment and was widespread across the offset site (Plate 1). Other environmental weeds observed included Flannel Weed *Sida cordifolia*, which was observed in dense patches within the more disturbed areas (Plate 2). Small scattered patches of environmental weed Red Natal Grass *Melinis repens* was observed towards the northern extent of the offset area.

Native grasses were observed to be locally abundant in places, particularly in the less disturbed areas along the ridgeline. A large patch of native grassland dominated by Queensland Bluegrass *Dichanthium sericeum* was observed in the north-western extent of the offset area (Plate 3). Other native species observed included Black Speargrass *Heteropogon contortus*, Many-headed Wiregrass *Aristida caput-medusae* and *Atriplex lindleyi* (Plate 4). Native grass cover appears, at least superficially, to have increased. This is likely to be as a result of the high rainfall experienced at the end of the wet season due to the impact of ex-Tropical Cyclone Debbie.

Targeted weed control activities have not been undertaken; however limited grazing has occurred within the active management area.

1.2.1 Further actions

The extent and density of Buffel Grass currently does not warrant the use of cattle for control given that cattle are unlikely to exclusively graze on Buffel Grass and the potential exacerbation of soil erosion from trampling. The use of targeted herbicide application was considered to control exotic grasses; however the small areas of infestation and dispersed nature throughout the offset area does not warrant targeted control at this time. The infestations will be monitored in the next scheduled monitoring event to ensure that the infestations remain within known areas.

Plate 1 – Area of Buffel Grass infestation

Plate 2 – *Sida* spp.

Plate 3 – Queensland Bluegrass patch

Plate 4 – Black Speargrass patch

1.3 Erosion and areas with high erosion potential

Areas of erosion occur across the offset site and primarily along Brook Creek. Existing areas of erosion have been exacerbated as a result of the above average rainfall experienced at the end of March 2017 due to ex-Tropical Cyclone Debbie. Brook Creek and other tributaries, particularly in the north of the offset site, displayed deeply incised banks (Plate 5 and 6). Areas of erosion wash-outs are present adjacent to Brook Creek and are devoid of vegetation (Plate 7).

Two of the most common soil orders in the Moranbah region are Sodosols and sodic (containing sodium) Vertosols. These soils are commonly non-sodic in the surface, but become sodic and dispersive in the subsoil. These soils are generally resistant to water erosion provided that the surface soil is undisturbed and sufficient vegetation cover is maintained. The topsoils are fragile due to low organic matter, nutrient levels and poor soil structure. Vegetation cover and topsoil are both easily disturbed through vegetation clearing and grazing. Disturbance of the surface that exposes the sodic subsoil to rainwater often results in the clay minerals in the soil spontaneously dispersing, giving rise to progressively worsening rilling, gully and tunnel erosion. In the case of the offset area, historical vegetation clearing and cattle grazing impacts have resulted

in the loss of vegetated ground cover and subsequent exposure of sodic sub-soils. Since the offset area has been managed as an environmental offset, these impacts have been excluded (in the case of vegetation clearing) or reduced (in the case of grazing), however the natural erosive processes will continue to impact on the offset area, primarily from intense, high rainfall events.

The northern tributary of Brook Creek at the base of the ridge was holding water at the time of the survey with an abundant cover of wetland grasses and sedges (Plate 8).

Farm tracks to access the offset site have been affected by recent heavy rains and are heavily eroded in parts. Track maintenance will be required for future monitoring activities.

Plate 5 – Erosion associated with Brook Creek

Plate 6 – Erosion within tributary of Brook Creek

Plate 7 – Large washed out areas adjacent to Brook Creek

Plate 8 – Wetland vegetation within tributary of Brook Creek

1.3.1 Further actions

Erosion control activities have not been undertaken to date, however a range of measures are being considered to assess the potential for further erosion along Brook Creek and other areas, and to determine an appropriate response to slow or halt the rate of erosion. Rehabilitation may also be considered if it can be shown that the risk of further erosion from high rainfall events can be managed appropriately.

Track maintenance has been scheduled to occur to ensure that the offset area is accessible for future monitoring and maintenance events.

1.4 Bushfire fuel loads

In March 2017, the Moranbah Airport (nearest station to the offset area) experienced above average rainfall (257.8 mm) as a result of ex-Tropical Cyclone Debbie and the associated low pressure system. No rainfall was recorded for the month prior to the May survey, however the rainfall experienced during the end of the wet season has resulted in limited grass dieback. The bushfire fuel load is currently low, however is expected to increase gradually into the end of the dry season if there is limited rainfall.

The offset area is relatively sheltered from bushfire attack to the north, east and south from the surrounding escarpment. Bushfire is therefore likely to come from vegetated areas to the west. There is a firebreak along the western boundary of up 60 metres in width, which provides protection from bushfire attack from this direction.

1.4.1 Further actions

No further actions required at this time.

1.5 Damage/degradation from pest animal populations

The primary pest animal threat within the offset area are Wild Dogs / Dingoes *Canis lupus / C. l. dingo*. Rabbits *Oryctolagus cuniculus* and Wild Pigs *Sus scrofa* are also present, but at much lower densities. No Wild Dogs, Dingos or Wild Pigs were observed during the monitoring inspection and no recent activities (eg. scats, diggings, wallows) were observed during the current monitoring visit. However, rabbits were observed towards the north-west of the offset area at the base of the ridge and associated with eroded gullies containing warrens. Due to the low productivity value of the offset area, rabbits are considered to occur at low densities and this assessment takes into account the low number of active warrens observed over the last several monitoring visits.

The presence of such pests has the potential to result in some adverse impacts on the offset area and exacerbation of existing issues such as weed spread and soils erosion. From previous monitoring visits, the frequency of pest animal activity is low and localised within portions of the offset area. Therefore, the risk of pest animal activity further contributing to impacts on vegetation and soils is also considered to be low.

1.5.1 Further actions

Although there have not been any targeted pest animal control activities conducted on the offset area to date, Mr. Smith has undertaken opportunistic shooting of Wild Dogs and Pigs within the surrounding area, however specific numbers are not available.

No further actions are required at this time. Given the low pest animal activity observed within the offset area, any targeted control programs are likely to be unsuccessful, in that the level of activity is below that which can be managed effectively. Should subsequent monitoring visits show an increase in pest animal activity, targeted control programs will be considered.

1.6 Success of revegetation works

Active revegetation activities have not been undertaken to date and are not currently planned to occur. The limited presence of cattle within the offset area has allowed natural regeneration to continue throughout the active management area in the absence of intensive grazing pressures.

1.6.1 Further actions

No further actions required at this time.

1.7 Groundcover and signs of land degradation during pulse grazing

Cattle have been occasionally present within the offset area in the months preceding the monitoring inspection, however at very low densities. There were few obvious signs of cattle impacts although no obvious signs of grazing pressure on grass cover.

1.7.1 Further actions

As per section 1.2, pulse grazing is not recommended at this time to reduce the abundance of Buffel Grass. Therefore, impacts from cattle are likely to be negligible.

2 Field Component of Ecological Equivalence Monitoring

Ecological equivalence monitoring (i.e. BioCondition assessments) of permanent monitoring sites was completed in August 2015. The next monitoring event for BioCondition is scheduled for August 2017.

3 Permanent Photo-monitoring Sites

Photo monitoring points were established within the offset area. Sample photos from each point are shown in Appendix 3 and the locations shown in Table 2 and in Figure 1.

Table 1 Coordinates for Photo-monitoring Points.

Photo-monitoring Point	Easting	Easting
PM01	624951	7590122
PM02	624779	7590533
PM03	624576	7590371
PM04	624278	7589864
PM05	624292	7589503
PM06	624293	7589194
PM07	623720	7589438

Coordinates are in datum GDA94, MGA Zone 55 projection

4 Summary

In summary, an inspection of the offset area was undertaken on 2 May, 2017 by Ecology and Heritage Partners for the purposes of visual monitoring according to Section 4 of the Wotonga Offset Area Management Plan. The following was noted as part of this inspection:

- The offset area experienced heavy rainfall in the months preceding the monitoring visit due to ex-Tropical Cyclone Debbie, which resulted in good vegetation growth in the ground layer (eg. grasses and herbs) and standing water was present in areas;
- Buffel Grass and other exotic grasses remain within the offset area, however these occur as small areas of infestations or dispersed throughout existing communities (at low density) and do not currently present a high level of threat within the offset area;
- There has been an exacerbation of existing erosion along Brook Creek as a result of high intensity rainfall from ex-Tropical Cyclone Debbie. In the absence of intensive grazing pressure or other activities, the main erosion threat is from high intensity rainfall events.
- Potential bushfire fuel loads were assessed as low considering the extent of green vegetation present, although fuel loads will increase as this material dries out over the dry season.
- No recent activity of Wild Dogs or Feral Pigs was observed, however rabbits were observed in the north-west portion of the offset area. Due to the low productivity value of the offset area, rabbits

are considered to occur at low densities and this assessment takes into account the low number of warrens and rabbit activity observed over the last several monitoring visits.

Further actions are provided where applicable. The next monitoring event is scheduled for August 2017 and will include completion of BioCondition assessments.

Yours sincerely

Dave Fleming
Principal Ecologist

Ecology and Heritage Partners Pty Ltd

5 REFERENCES

Ecofund. 2013. *Wotonga Offset Area Management Plan – Millennium Expansion Project*. A report prepared for Peabody Energy Australia Pty Ltd.

Eyre, T.J., Kelly, A.L, Neldner, V.J., Wilson, B.A., Ferguson, D.J., Laidlaw, M.J. and Franks, A.J. 2015. *BioCondition: A Condition Assessment Framework for Terrestrial Biodiversity in Queensland. Assessment Manual*. Version 2.2. Queensland Herbarium, Department of Science, Information Technology, Innovation and Arts, Brisbane.

Figure 1 – Location of Photo Monitoring Sites

Legend

- Wotonga Offset Area
- Tracks from KML
- Regional Ecosystem 11.9.5

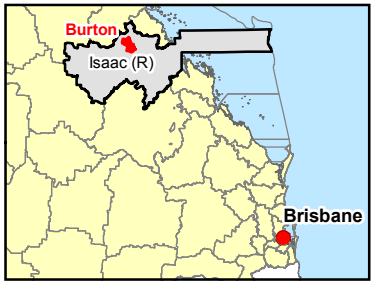

Figure 1

Location of photopoints

Millenium Mine Offset Management

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Metres

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Appendix 1 – Conditions of Approval under the EPBC Act

Australian Government

Department of Sustainability, Environment, Water, Population and Communities

Approval

Millennium Expansion Project – EPBC No 2009/4821

This decision is made under sections 130(1) and 133 of the *Environment Protection and Biodiversity Conservation Act 1999*.

Proposed action

person to whom the approval is granted	Peabody Energy Australia Pty Ltd
proponent's ACN (if applicable)	93 096 909 410
proposed action	To extend the current open cut mining operation on the existing ML 70313 and additionally into two adjoining leases Mining Lease Application MLA 70401 "North Poitrel" and Mineral Development Licence MDL 136 "Mavis Downs", 22km east of Moranbah and 16km south west of Coppabella in central Queensland as described in the referral received 27 March 2009 and the Millennium Expansion Project Environment Impact Statement dated December 2010 (see EPBC Act Referral 2009/4821).

Approval decision

Controlling Provision	Decision
Listed threatened species and communities (sections 18 & 18A)	Approved

conditions of approval

This approval is subject to the conditions specified below.

expiry date of approval

This approval has effect until 28 October 2031.

Decision-maker

name and position	David Calvert A/g Assistant Secretary Environment Assessment Branch
signature	
date of decision	3 November 2011

Conditions attached to the approval

1. To offset the impact to the Brigalow (*Acacia harpophylla* dominant and co-dominant) ecological community, the person taking the action must register a legally binding conservation mechanism (such as a Nature Refuge Agreement) over a minimum of 112.5 hectares of the Brigalow (*Acacia harpophylla* dominant and co-dominant) ecological community (the offset area) as identified in the offset management plan referred to in condition 2. The mechanism/s must provide enduring protection for protection for the offset area and be registered within 2 years of the date of this approval.

   The conditions of the conservation mechanism must ensure that management actions are undertaken for the protection and enhancement of the Brigalow (*Acacia harpophylla* dominant and co-dominant) ecological community. The person taking the action must obtain agreement from any third parties responsible for management actions and provide details of the responsible parties, including their position or status as a separate contractor, to the **department**.

2. To offset the impacts to the Brigalow (*Acacia harpophylla* dominant and co-dominant) ecological community, the person taking the action must submit to the **Minister** for approval an Offset Management Plan within 12 months of the date of this approval.

   This Offset Management Plan must include, at a minimum, the following information:
   a. the desired outcomes/objectives of implementing the plan;
   b. details of Brigalow (*Acacia harpophylla* dominant and co-dominant) endangered ecological community offset areas, including a textual description and map to clearly define the location and boundaries of the offset area. This must be accompanied with the **offset attributes** and a **shapefile**;
   c. details of management actions to protect and enhance the extent and condition of the threatened species habitat values including rehabilitation, weed control, fire management, erosion and sediment control, management of livestock and restrictions on access, within the offset area;
   d. the timing, responsibilities and performance criteria for such actions;
   e. a monitoring plan including ecological surveys that must be undertaken to assess the success of the management measures against identified milestones and objectives;
   f. a process to report, to the **department**, the management actions undertaken in the offset areas and the outcome of those actions, including identifying any need for improved management;
   g. a description of the potential risks to successful management and rehabilitation in the offset areas, and a description of the contingency measures that would be implemented to mitigate these risks; and,
   h. details of parties responsible for monitoring, reviewing and implementing the plan.

   The Offset Management Plan must be implemented.

3. Before impacting or removing any EPBC listed ecological community or species, the person taking the action must provide to the **Minister** a Threatened Flora and Fauna Species and Ecological Communities Management Plan. The Plan must contain, but is not limited to, the following:
   a. Management actions relating to EPBC listed species; and
   b. Mitigation actions relating to EPBC listed species.

   The Threatened Flora and Fauna Species and Ecological Communities Management Plan must be implemented. This plan may be made publicly available on the internet by the **department**.

Note: Condition 8 provides that, if the **Minister** believes that it is necessary or desirable for the better protection of the environment, the **Minister** may require the person taking the action to make, within a period specified by the **Minister**, revisions to a plan required under these conditions.

4. Within 14 days from the **commencement of construction**, the person taking the action must advise the **department** in writing of the actual date of **commencement of construction**.
5. Within three months of every 12 month anniversary of the **commencement of construction**, the person taking the action must publish a report on their website addressing compliance with each of the conditions of this approval, including implementation of any management plans as specified in the conditions. Documentary evidence providing proof of the date of publication and non-compliance with any of the conditions of this approval must be provided to the **department** at the same time as the compliance report is published.
6. Upon the direction of the **Minister**, the person taking the action must ensure that an independent audit of compliance with the conditions of approval is conducted and a report submitted to the **Minister**. The independent auditor must be approved by the **Minister** prior to the commencement of the audit. Audit criteria must be agreed to by the **Minister** and the audit report must address the criteria to the satisfaction of the **Minister**.
7. If the person taking the action wishes to carry out any activity otherwise than in accordance with the Plans referred to in conditions 2 and 3, as specified in the conditions, the person taking the action must submit to the **department** for the **Minister**'s written approval a revised version of that plan. The varied activity shall not commence until the **Minister** has approved the revised plan in writing. If the **Minister** approves the revised plan, that plan must be implemented in place of the plan originally approved.
8. If the **Minister** believes that it is necessary or convenient for the better protection of listed threatened species and communities to do so, the **Minister** may request that the person taking the action make specified revisions to plans specified in the conditions and submit the revised plan for the **Minister**'s written approval. The person taking the action must comply with any such request. The revised plan must be implemented. Unless the **Minister** has approved the revised plan then the person taking the action must continue to implement the original plan.
9. If, at any time after 5 years from the date of this approval, the person taking the action has not substantially commenced the action, then the person taking the action must not substantially commence the action without the written agreement of the **Minister**.
10. The person taking the action must maintain accurate records substantiating all activities and outcomes associated with or relevant to the above conditions of approval, including measures taken to implement the management plans required by this approval, and make them available upon request to the **department**.

    Such records may be subject to audit by the **department** or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the **department**'s website. The results of audits may also be publicised through the general media.

    Note: To avoid doubt, if a condition of a State (QLD) approval held by the proponent requires a plan relating to EPBC-listed species the proponent may simultaneously meet the relevant requirements of these conditions by submitting a single plan.

Appendix 2 – Wotonga offset details

Departmental Reference Details

Reference and Assessment Details	
Queensland Departmental Reference No: MIN10034430	**Queensland Offset ID:** TBA
Property Address: Wotonga Pastoral Holding, Ellensfield Road, Burton, Queensland	
Real property description: Lot 13 on SP178466	
Tenure: Leasehold	**Primary local government area:** Isaac Regional Council

Offset Area Details

Landholder Details	
Registered Lot on Plan: Lot 13 on SP178466	
Registered Owner/s on Title: State of Queensland	
Lessee: Wotonga Pastoral Pty Ltd	**Trustee:** N/A
Business/Company name (ABN/CAN): Peabody (Burton Coal) Pty Ltd (formerly Wotonga Pastoral Pty Ltd) (ACN: 077 679 513)	
Phone number: +61 (7) 3239 7279	**Mobile Phone:** +61 (4) 488 224 546
Fax number: +61 (7) 3229 1776	**Contact person:** John O'Brien
Email: jobrien2@peabodyenergy.com	
Postal address: GPO Box 1025, Brisbane QLD 4001	

Appendix 3 – Photo monitoring

Plate 1a – Photo-monitoring point 1 (PM01) looking north (regional ecosystem 11.7.3) – August 2015

Plate 1b – PM01, April 2016

Plate 1c – PM01, August 2016

Plate 1d – PM01, May 2017

Plate 2a – Photo-monitoring point 2 (PM02) looking north (RE 11.7.2) – August 2015

Plate 2b– PM02, April 2016

Plate 2c – PM02, August 2016

Plate 2d – PM02, May 2017

Plate 3a – Photo-monitoring point 3 (PM03) looking north (RE 11.7.3) – August 2015

Plate 3b – PM03, April 2016

Plate 3c – PM03, August 2016

Plate 3d – PM03, May 2017

Plate 4a – Photo-monitoring point 4 (PM04) looking north (erosion) – August 2015

Plate 4b – PM04 - April 2016 showing slightly different angle.

Plate 4c – PM04, August 2016

Plate 4d – PM04, May 2017

Plate 5a – Photo-monitoring point 5 (PM05) looking north (RE 11.9.5) – August 2015

Plate 5b – PM05, April 2016

Plate 5c – PM05, August 2016

Plate 5d – PM05, May 2017

Plate 6a – Photo-monitoring point 6 (PM06) looking north (RE 11.7.2) – August 2015

Plate 6b – PM06, April 2016

Plate 6c – PM06, August 2016

Plate 6d – PM06, May 2017

Plate 7a – Photo-monitoring point 7 (PM07) looking north (RE 11.5.3a) – August 2015

Plate 7b – PM07, April 2016

Plate 7c – PM07, August 2016

Plate 7d – PM07, May 2017

ecology & heritage partners

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